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*University of Southern Mississippi*

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DISCREPANT SELF-PERCEPTIONS AS PREDICTORS OF RULE VIOLATING  
BEHAVIOR AMONG JUVENILE OFFENDERS

by

Kimberly G. Barajas

A Thesis

Submitted to the Graduate School,  
the College of Education and Human Sciences  
and the School of Psychology  
at The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Master of Arts

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## ABSTRACT

Numerous studies have examined discrepancies between youths' self-perceptions and others' ratings across different domains of competence (i.e. academic, behavior, social) (e.g., Jia, Jiang, & Mikami, 2016; Kistner, 2006; Owens et al., 2007) and it is well-established that discrepant self-perceptions are risk factors for maladaptive outcomes (e.g., aggression, depression) in children and adolescents (David & Kistner, 2000; Jia et al., 2016; Kistner et al., 2006). Only one study has examined discrepant self-perceptions (e.g., perceptual bias) in a sample of male juvenile offenders (JOs) (Smith, Lynch, Stephens, & Kistner, 2015). This study sought to extend the literature examining discrepant self-perceptions within juvenile offenders in two important ways: first, by examining whether two separate facets of discrepant self-perceptions (i.e., perceptual bias and inaccurate self-perceptions) in the behavioral domain were predictive of JOs' rule violations following their incarceration; second, by examining if race moderated the relationship between discrepant self-perceptions and rule violating behaviors. A series of negative binomial regressions revealed that JOs who underestimated their behavioral competence were more likely to have rule violations when first adjusting to the facility. Further, race was found to moderate the relationship between inaccurate self-perceptions and rule violating behaviors, such that more accurate self-perceptions were associated with heightened levels of rule violating behaviors for only Caucasian JOs. These findings are further discussed and explained in the context of psychological theories (e.g., self-verification theory; low self-esteem hypothesis).

## ACKNOWLEDGMENTS

I would like to express my deepest gratitude and appreciation to my mentor, Dr. Stephanie Smith, whose guidance throughout this process has been invaluable. I would also like to thank my committee members, Drs. Sara Jordan and Nora Charles, for their advice and support throughout the duration of this project.

## DEDICATION

I would like to dedicate this document to my family: mom, dad, Gabi, Nacho, Nick, and Blake. I am eternally grateful for the much-needed love, laughter, and patience as I finish this journey. I would also like to thank Koda and Kiki for their love and loyalty at the end of every long day.

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## LIST OF ABBREVIATIONS

<i>JO</i>	Juvenile Offenders
<i>SPPA</i>	Self-Perception Profile for Adolescents
<i>SPPC</i>	Self-Perception Profile for Children
<i>AA</i>	African-American
<i>TRS</i>	Teacher Rating Scale
<i>EFA</i>	Exploratory Factor Analysis
<i>ADHD</i>	Attention-Deficit Hyperactivity Disorder
<i>CBU</i>	Controlled Behavior Unit
<i>IRR</i>	Incidence-Rate Ratios
<i>IRB</i>	Institutional Review Board
<i>FSU</i>	Florida State University

## CHAPTER I – INTRODUCTION

Numerous studies have examined discrepancies between youths' perceptions and others' ratings of their competence across various domains of functioning (i.e. academic, behavior, social) (e.g., Cole, Martin, Peeke, Seroczynski, & Hoffman, 1998; David & Kistner, 2000; Jia, Jiang, & Mikami, 2016; Kistner, David-Ferdon, Repper, & Joiner Jr, 2006; Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007). It is well-established that discrepant self-perceptions are risk factors for maladaptive outcomes (e.g., aggression, depression) in children and adolescents. Such research has been done in specialized populations including children and adolescents with ADHD and depressive disorders, and in youth who are typically developing. However, the research literature is less developed when considering the contributory role of discrepant self-perceptions in the development of rule violating behaviors in juvenile offenders (JOs). Understanding the risk factors for rule violating behaviors in juvenile offenders (JO) is important, as it can help shape rehabilitation efforts and potentially improve youths' functioning upon their release.

### Development of Self-Perceptions

Self-perceptions are important for the developing child because they lead to the development of a sense of self. Harter (1999) states that global self-views are comprised of self-perceptions across different domains of functioning where those domains that are deemed the most important have the most influence on the emerging self. Different models have been formulated to explain the relationship between self-perceptions and global self-views. However, the multifaceted hierarchical model is believed to be the most accurate conceptualization of how global self-views are formed (Marsh & Shavelson, 1985; Shalveson, Hubner, & Stanton, 1976). The model is considered

multifaceted because self-perceptions may be formed across discrete domains of competency (e.g., academics, physical, social, behavioral); and it is considered hierarchical because these domains combine to form an overarching or global self-view. Harter's self-perception measures for children and adolescents are quite comparable to this model (Self-Perception Profile for Children [SPPC], Harter, 1985; Self-Perception Profile for Adolescents [SPPA], Harter, 1988) and support of the multi-faceted nature of global self-views was gleaned from exploratory factor analyses (EFA) conducted during measure development (Harter, 1999; Wichstraum, 1995).

As children mature and enter adolescence, their global self-views allow them to more readily shape goals, as well as monitor and regulate their social behaviors (Harter, 1999). When a child holds more positive self-views, they tend to invest energy in those domains where they feel the most competent; in contrast, when a child holds more negative self-views, they tend to focus on improving performance within those domains where they struggle the most (Harter, 1999). Research suggests that children and adolescents who develop a more negative self-view are more at-risk for a wide range of mental health problems (e.g., depression, anxiety, eating disorders) and are more likely to engage in risky behaviors (e.g., delinquency, drug use) (Mann, Hosman, Schaalma, & de Vries, 2004).

Initially, children generally hold overly positive self-perceptions, which are developmentally appropriate for children aged two to seven years (Harter, 1999). Young children hold these overly positive self-perceptions because they do not yet have the cognitive abilities to accurately evaluate their skills (David & Kistner, 2000; Harter, 1999). As children enter adolescence and cognitively mature, they become more aware of

their abilities and strengths so their self-perceptions become increasingly accurate (David & Kistner, 2000). Additionally, children encounter new academic and social challenges, as well as receive more feedback from their peers, teachers, and parents when they begin and spend more time in school that better enable them to evaluate their level of functioning (Eccles et al., 1989; Jacobs et al., 2002).

Some subgroups of children and adolescents continue to have positively biased self-perceptions past an appropriate age. Indeed, children with ADHD have been found to overestimate their competence in domains where they experience the greatest deficits (Hoza et al., 2004; Hoza et al., 2002). Moreover, children who are rated as more aggressive by their teachers and peers are more likely to have positively biased perceptions of their social acceptance (Smith, Lynch, Stephens, & Kistner, 2015; Stephens, Lynch, & Kistner, 2015). Mikami and colleagues (2010) suggest that cognitive immaturity, cognitive impairments (e.g., social information processing deficits), and self-preservation (e.g., protecting one's self-esteem) are all potential explanations for why positively biased self-perceptions are maintained. Although positively biased self-perceptions have been linked to such outcomes as aggression, more realistic self-perceptions have been found to be associated with mental well-being (David & Kistner, 2000; Kistner et al., 2006; Stephens et al., 2015; Orobio de Castro, Brendgen, Van Boxtel, Vitaro, & Schaevers 2007).

### Defining Discrepant Self-Perceptions

Studies define the construct of discrepant self-perceptions in a multitude of ways; researchers generally assess discrepant self-perceptions by examining the direction of the differences (i.e., perceptual bias) or absolute differences (i.e., inaccurate self-perceptions)

between objective indices of children's actual functioning (e.g., test scores, parent or teacher ratings) and children's own ratings of their competence (Dunkel, Kistner, & Ferdon, 2009). Perceptual bias is the degree to which self-perceptions are under- or overestimations of actual functioning; it exists on a continuum, so therefore self-perceptions may be negatively or positively biased. In contrast, inaccurate self-perceptions reflect how "off" ratings are in specific domains of competency regardless of the direction (Dunkel et al., 2009). Perceptual bias tends to be systematic, which means that faulty perceptions of functioning all fall in the same direction, whereas inaccurate self-perceptions are more random, so faulty perceptions may go in either direction. It has been suggested that inaccurate self-perceptions may be a more maladaptive form of discrepant self-perceptions since they are less systematic and may be more reflective of an underlying social information processing deficit (Smith, 2007).

#### Discrepant Self-Perceptions and Aggression

There have been several studies that have examined the relationship between perceptual bias within the social domain and maladaptive outcomes, particularly aggression. Specifically, studies have been consistent in finding that typically developing children who hold positively biased self-perceptions, as measured by the discrepancy between children's self-ratings of social acceptance versus peer nominations of social acceptance, are more likely to display aggressive behaviors (Brendgen, Vitaro, Turgeon, Poulin, & Wanner, 2004; David et al., 2000; Diamantopoulou, Rydell, & Henricsson, 2008; Stephens et al., 2015). Additionally, a few studies have found that typically developing children who hold positively biased self-perceptions of peer acceptance and are also rejected by their peers are more likely to have elevated rates of aggression

(White & Kistner, 2011; Orobio de Castro et al., 2007). Interestingly, one study found this relationship for positively and *negatively* biased self-perceptions of peer acceptance (White & Kistner, 2011). Only one study has examined discrepant self-perceptions in a sample of juvenile offenders (JOs) and it was found that perceptual bias of social acceptance predicted high levels of aggression among JOs during their incarceration (Smith et al., 2015).

The threatened egotism hypothesis as outlined by Baumeister and colleagues (1996) offers an explanation for the link between overly positive self-perceptions and aggression. The threatened egotism hypothesis is based on the premise that aggressive behaviors are more likely to occur when people's overestimations of their social acceptance are questioned, threatened, or undermined (Baumeister et al., 1996; Baumeister et al., 2000; Bushman & Baumeister, 1998; Bushman et al., 2009). According to the threatened egotism hypothesis, when one encounters feedback that is not in accordance with their own self-perceptions, they may react in one of two ways: 1) accept this feedback and alter their self-perceptions so it is more aligned with how others view them, and 2) reject this feedback and react aggressively so they are less likely to receive such feedback in the future. White and Kistner (2011) directly tested this theory by examining whether peer rejection moderates the relationship between perceptual bias and aggression; they found that perceptual bias and aggression were related only for rejected children.

#### Discrepant Self-Perceptions and Disruptive Behaviors

More recently, studies have expanded upon the domains for which discrepant self-perceptions are calculated (i.e., behavioral) as well as examined their association with



broader conceptualizations of maladaptive outcomes (i.e., disruptive behaviors vs. aggressive behaviors). Mikami, Calhoun, and Abikoff (2010) conducted a study examining how positively biased self-perceptions (within the social and behavioral domains) might impact treatment outcomes for children with ADHD who attended an 8-week long summer camp specializing in behavioral treatment. Harter's SPPC measure was completed by the children, while the camp counselors filled out a teacher measure assessing actual competence in the same domains as the SPPC (i.e., Teacher Rating Scale; TRS). Additionally, camp counselors documented all instances of disruptive behaviors. Perceptual bias scores were calculated using the difference method (e.g., subtracting the counselor's ratings from the child's rating), since it is the most commonly used method in the extant literature (Hoza et al., 2004; Hoza et al., 2002; Owens et al., 2007). Results of this study indicated that positively biased self-perceptions in the behavior domain at baseline predicted increases in disruptive behaviors over time and poorer treatment response. Using the same sample as Mikami and colleagues (2010) and including a subgroup of typically developing children, another study found that positively biased perceptions within the social and behavioral domains for children with ADHD predicted lower peer preference, as well as higher levels of disruptive behavior (Jia et al., 2016). Interestingly, for typically developing children, positively biased perceptions did not predict any of these outcomes. The results of these studies suggest that children with ADHD who hold positively biased self-perceptions may be more resistant to treatment and are more likely to continue to engage in disruptive behaviors over time.

The threatened egotism hypothesis offers a compelling explanation as to why peer rejection may lead to aggression for children and adolescents who hold positively biased

perceptions in the social domain; however, this theory may be too specific to explain why discrepant self-perceptions (i.e., perceptual bias, inaccurate self-perceptions) in the behavioral domain may predict disruptive behaviors. Past research has suggested that cognitive impairments (e.g., social information processing deficits) may maintain discrepant self-perceptions in youths and may also be helpful in explaining its relationship with disruptive behaviors. The social information processing theory suggests that there are a series of mental steps (e.g., encoding, interpreting, determining and evaluating a response to social cues) that take place during social interactions (Crick & Dodge, 1994). Studies have found that there are impairments at almost every step of this social-cognitive processing sequence for youths who are chronically aggressive or meet diagnostic criteria for ADHD or Disruptive Behavior Disorders. Specifically, these youths often have trouble encoding social cues, tend to perceive others' intentions as hostile (i.e., hostile attribution bias), and are less accurate in predicting the consequences of their behaviors (Cadesky, Mota, & Schachar, 2000; Lochman & Dodge, 1994). Studies with institutionalized males, especially juvenile offenders (JOs) who are highly aggressive, tend to have similar social-cognitive biases and processing deficits (Dodge & Frame, 1982; Dodge, Price, Bachorowski, & Newman, 1990; Short & Simeonsson, 1986; Slaby & Guerra, 1988). Considering juvenile offenders (JOs) often view their behaviors as justifiable (given they perceive others' intentions as hostile) and fail to consider the consequences of their actions (Cadesky et al., 2000; Lochman, 1987), the adjustment of their self-perceptions so they are more aligned with others' views and the adoption of more adaptive ways of responding is less likely to occur.

This study expands on the Smith et al. (2015) study by examining whether discrepant self-perceptions (e.g., perceptual bias and inaccurate self-perceptions) within the *behavioral* domain predicted rule-violating behaviors as JOs initially adjusted to their placement in a maximum-security residential facility. Initial adjustment was of particular interest because we aimed to examine behaviors and self-perceptions before the adolescents began receiving therapeutic services, which may have influenced our variables of interest. Although there are no known studies that have examined the role of inaccurate self-perceptions in predicting disruptive behaviors, research has shown that inaccurate self-perceptions are associated with internalizing symptoms (e.g., withdrawal, loneliness, depression) (Cillessen & Bellmore, 1999). Since it has been suggested that inaccurate self-perceptions may be a more maladaptive form of discrepant self-perceptions and more reflective of an underlying social-cognitive processing deficit given their less systematic nature (Smith, 2007), it seemed important to evaluate the relationship between inaccurate self-perceptions and disruptive behaviors, as it may have different implications for treatment.

#### Race and Discrepant Self-Perceptions

Studies have been consistent in finding that African American children overestimate their social acceptance by their Caucasian peers and Caucasian children underestimate their acceptance by their African American peers (Dunkel et al., 2009; Stephens et al., 2016). According to Dunkel and colleagues (2009), this pattern of results was not attributable to Caucasian children giving less favorable ratings to their African American peers, but rather African American children giving more positive ratings to all children regardless of their racial background. In an attempt to explain this more positive rating

style of African American children, it was suggested that African American children may be socialized to have a more positive view of themselves and others (Dunkel et al., 2009). This may stem from the fact that the African American culture is more likely to promote values such as collectivism, cultural pride, and participation in religious groups (Cavendish, Welch, & Leege, 1998; Dunkel et al., 2009; Ellison, 1993; Thomson & McRae, 2001). Specifically, religion played an important role in uniting African American communities during times of increased racial oppression and studies have found that religion may help develop a sense of belongingness and bolster self-esteem (Cavendish, Welch, & Leege, 1998; Ellison, 1993; Thompson & McRae, 2001). Thus, it is thought that children's internalization of the African American culture may explain why African American children have more positive views of themselves and others and may ultimately serve as a protective factor with respect to their developing self-views.

Although African American children are not less accepted by their Caucasian peers (Kennedy, 1995), they have been rated as more aggressive by teachers and children of other races (David & Kistner, 2002). There is also research to suggest that African American children are about two times more likely to receive referrals for problem behaviors and to have stricter consequences (e.g., suspended or expelled), even for minor infractions (Skiba, Michael, Nardo, & Peterson, 2002; Skiba, Horner, Chung, Rausch, Mary, & Tobin, 2011). Skiba et al. (2011) offered various explanations for the disparity seen with the discipline methods used for Caucasian and African American children including racial stereotyping on behalf of school staff or a cultural mismatch between African American children and their teachers and peers, in that Caucasian teachers and peers perceive impassioned interactional patterns of African American children as

argumentative or hostile (Townsend, 2000). Because African American children tend to overestimate social acceptance, are often rated as having more behavior problems, and are overrepresented in having disciplinary referrals, it was expected that race would moderate the relationship between perceptual bias and disruptive behaviors such that the relationship between perceptual bias and disruptive behaviors would be stronger for African American JOs.

### Sex, Discrepant Self-Perceptions and Maladaptive Behaviors

Research has consistently shown that males are more likely to be diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD; Novik et al., 2016; Ramtekkar, Reiersen, & Todorov, 2010; Willcutt, 2012; Arnold, 1996; Gaub & Carlson, 1997; Shaeffer, 2006; Keenan & Shaw, 1997; McDermott, 1996; Lumley, McNeil, Herschell, & Bahl, 2002; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). Further, when examining parent and teacher ratings of externalizing symptoms (e.g., symptoms of ADHD; disruptive behaviors), parents and teachers are more likely to rate males as having a greater number of these symptoms as compared to females (Lumley, McNeil, Herschell, & Bahl, 2002; Anastopoulos, Beal, Reid, Reid, Power, & DuPaul, 2018). Sex differences are also found in studies that have examined discrepant self-perceptions. For example, research has found that males are more likely than females to have positively biased and inaccurate self-perceptions of social acceptance (Stephens, Lynch, & Kistner, 2015; Smith, Van Gessel, David-Ferdon, & Kistner, 2013). Studies examining the relationship between discrepant self-perceptions and disruptive behaviors in at-risk youth tend to have an overrepresentation of males in their sample given the sex differences typically seen for

aggression and related behaviors (Serbin, Moskowitz, Schwartzman, & Ledingham, 1991). Thus, an advantage of our study sample that is comprised exclusively of male juvenile offenders is that these findings are likely to be more robust since the clinical presentation of JOs will undoubtedly be more severe with respect to rule-violating behaviors and social information processing deficits. This will allow us to extend the findings of previous studies examining our study variables.

### Present Study

One-half to two-thirds of JOs meet criteria for one or more mental health disorders, with ADHD and Conduct Disorder being the most prevalent comorbidities (Teplin, 2006; Grisso, 2008; Young et al., 2010). Although ADHD and Conduct Disorder are the most prevalent disorders among JOs, it is important to not generalize findings from these less severe clinical populations to JOs because differences may exist between these populations that increase JOs' risk of incarceration. There is currently a lack of research examining discrepant self-perceptions among juvenile offenders and their behaviors within residential facilities. Only one study has examined how positively biased perceptions of JOs predict later behavior and it was found that positively biased perceptions of social acceptance predicted initial aggression and stably high levels of aggression over time (Smith et al., 2015). Despite the lack of research in this area, studying potential risk factors of rule-violating behaviors among JOs is important, as it can help shape rehabilitation efforts and potentially improve youths' functioning upon their release.

The proposed study extended the Smith et al. (2015) study in two important ways. First, it examined whether two separate facets of discrepant self-perceptions (i.e.,

perceptual bias and inaccurate self-perceptions) in the behavior domain were predictive of rule violations of JOs following their incarceration. Research suggests that institutionalized males, specifically those juvenile offenders who are highly aggressive, tend to have social-cognitive processing deficits including difficulties with interpreting and encoding cues or behaviors (e.g., hostile attribution bias), and predicting the consequences of these behaviors (Dodge, Price, Bachorowski, & Newman, 1990; Short & Simeonsson, 1986; Slaby & Guerra, 1988). Due to juvenile offenders possessing these social-cognitive processing deficits, they often view their own behaviors as justifiable which prevents them from adjusting their self-perceptions so they are more aligned with others' views. Therefore, these processing deficits may maintain discrepant self-perceptions within juvenile offenders and may further provide an explanation of the relationship between perceptual bias and rule-violating behaviors. Second, since past research has found that African American children are more likely to have positively biased self-perceptions as compared to Caucasian children, are often rated as having more behavioral problems, and are overrepresented in regard to disciplinary referrals, this study examined if race moderates the relationship between perceptual bias and rule violating behaviors (Dunkel et al., 2009; Skiba et al., 2002; Skiba et al., 2004; Stephens et al., 2015; Townsend, 2000). Lastly, because no known studies have examined the relationship between inaccurate self-perceptions and rule violating behaviors among juvenile offenders, this was examined on an exploratory basis. These variables were important to explore as it is thought that inaccurate self-perceptions may be a more maladaptive form of discrepant self-perceptions and may be more reflective of an underlying social-cognitive processing deficit given their less systematic nature (Smith,

2007). Rule violating behaviors were further disaggregated into aggressive and oppositional behaviors, which allowed for the comparison of our findings to prior studies (e.g., Smith et al., 2015; Mikami et al., 2010) and if these specific behaviors better accounted for the relationship between discrepant self-perceptions and rule violating behaviors.

The following hypotheses were proposed:

1. *It was hypothesized that perceptual bias in the behavioral domain would be predictive of rule violating behaviors of JOs within the first month of their commitment to a maximum-security residential facility.*
2. *It was also hypothesized that race would moderate the relationship between perceptual bias and rule violating behaviors so that this relationship is stronger for African-American JOs as compared to Caucasian JOs.*
3. *Lastly, on an exploratory basis, we examined the relationship between inaccurate self-perceptions and rule violating behaviors among JOs, as well as whether race moderates this relationship.*



## CHAPTER II– METHOD

### Participants

Youths entering the facility were between the ages of 14 and 18 years; on average, youths were 16 years old at the time of their admission to the facility. All JOs at this facility had a history of persistent criminal behavior with at least one adjudicated felony and had on average 9 adjudicated offenses: 18% were violent offenses, 39% were property offenses, 2% were drug offenses, and 41% were miscellaneous offenses (e.g., oppositional conduct, probation violations). The average age of when JOs committed their first adjudicated offense was 14.37 (SD = 1.78) years. Seventy percent of JOs identified as African American and 30% identified as Caucasian. Seventy-six percent of youths were in tenth grade or higher when they entered the residential facility. Prior to entering the residential facility, 48% of youths had received special education services. Finally, approximately 17% of youths reported involvement in gang-related activities before their commitment to the facility. Archival data used in this study were originally collected for facility purposes and approval was received from the Department of Juvenile Justice (DJJ) and from the Institutional Review Board (IRB) of the institution conducting this research before these de-identified data were accessed and analyzed. Demographic statistics of the study sample can be found in table 1.1.

Table 1.1 *Demographic Statistics of Study Sample.*

	Mean (SD)	Minimum	Maximum	Skewness	Kurtosis
Age (years)	16.635 (.939)	14	18	-.496	-.353
Education Level (grade)	9.80 (1.539)	6	12	-.181	-.777

Table 1.1 (continued).

Age of 1 <sup>st</sup> arrest	1.90 (.885)	6	17	-.449	.245
Total # of past offenses	19.24 (11.474)	1	44	.633	-.459
Total # of commitments	16.635 (.939)	1	5	.736	.154

#### Measures

*Self-Perception Profile for Adolescents (SPPA)*. The SPPA questionnaire (Appendix B) was administered for the purposes of collecting self-perception data across three domains (i.e., behavior, academic, social competence) following JOs initial adjustment to the facility (i.e., 2-4 weeks). The SPPA contains 45 self-report items and is used for adolescents between the ages of 15 and 18. The SPPA contains eight subscales (e.g., Academic Competence, Athletic Competence, Social Acceptance, Physical Appearance, Job Competence, Close Friendship, Romantic Appeal, and Behavioral Conduct), each of which has 5-items, as well as a Global Self-Worth subscale, also comprised of 5-items. Internal consistency for the SPPA has been well-established, with alpha coefficients ranging from .74 to .92 for the nine subscales. Wichstraum (1995) further evaluated the measure's psychometric properties and found evidence of convergent and discriminant validity. Furthermore, exploratory factor analyses revealed high factor loadings for each item on their subsequent subscales. The Behavioral Conduct subscale was of interest for this study and was used to calculate discrepant self-perception scores. Each item on the measure offers two sets of different descriptions of a characteristic (e.g., "Some youths do things they know they shouldn't do," "Other youths hardly ever do things they know they shouldn't do"). Youths were then asked to choose the set that was most similar to

themselves and to rate whether the statement is “Really True” or “Sort of True” for them. Given that scoring is on a 4-point likert scale and there are negatively and positively worded items, items were recoded during scoring so that higher scores reflected positive ratings. For the current study, the internal consistency for the behavioral conduct scale of the SPPA was determined to be acceptable with an alpha coefficient of .75.

*Teacher Rating Scale (TRS)*. The TRS (Appendix C) was administered to staff therapists within 2-4 weeks following a JO’s arrival to the facility; therapists rated youths’ competence in the same domains as the SPPA (behavior, academic, and social competence). Therapists instead of other facility staff (i.e., teachers, guards) were asked to complete this measure since therapists had more knowledge of JOs’ competence across these various domains of functioning. Each subscale of the TRS is comprised of 2 items resulting in a total of 15 items for this measure (Cole, Gandoli, & Peeke, 1998). Past research has shown the TRS to have good internal consistency, with alpha coefficients ranging from .93 to .97; additionally, the TRS has adequate test-retest reliability, with correlations ranging from .67 to .73. The Behavioral Conduct subscale was used as an objective indicator of JOs’ competence in this domain when compared to the same subscale on the SPPA and was used to calculate discrepant self-perception scores. As with the SPPA, each item on the TRS offers two sets of different descriptions of a characteristic (e.g., “This individual usually does the right thing,” “This individual usually acts the way he is supposed to”). Raters are asked to choose the set that is most similar to the youth being evaluated and to choose whether the statement is “Really True” or “Sort of True” for them. Given that scoring is on a 4-point likert scale and there are negatively and positively worded items, items were recoded during scoring so that higher

scores reflected greater competence. The internal consistency for the behavioral conduct scale of the TRS was .86 and deemed acceptable for the purposes of this study.

*Discrepant Self-Perceptions.* Perceptual bias was obtained by subtracting the mean TRS ratings from the mean SPPA ratings. The absolute value of these difference scores were used as a measure of inaccurate self-perceptions. This procedure, known as the difference method, was selected as it is more often used in the extant literature, and thus, allows researchers to compare the results across studies. Additionally, past research has found the difference method to be comparable to the residual method if actual acceptance is taken into account analytically as a covariate (Stephens et al. 2015). Finally, research suggests that aggressive behaviors correlate more strongly with the difference method, as compared to the residual method (Diamantopoulou et al., 2008; Stephens et al., 2015).

*Rule violating behavior.* Rule violations on behalf of JOs resulted in one of two consequences: 1) a behavioral write-up, or 2) relocation to a controlled behavior unit (CBU) where they were separated from the rest of the population and under one-to-one supervision. There were three levels of severity for behavioral write-ups: minors, moderates, and majors. Staff within the facility completed reports detailing the rule-violating behaviors they observed, as well as categorizing the severity of the rule-violation. Facility staff would then enter the description of each rule-violating behavior into a secure database. Trained research assistants were given access to a de-identified version of this database to code the descriptions according to eleven behavioral categories developed by the research team (see Table 1.2). The final number of behavioral categories was dependent on the descriptions found in the database so that a new category was developed only when the existing categories did not fit the description and this

process was repeated until all descriptions fit a category. Fifteen percent of these clinical files were independently coded by more than one member of the research team in order to establish inter-rater reliability ( $\kappa = .92$ ). Rule violating behaviors were operationalized by the total number of behavioral write-ups and total number of times JOs were segregated from the rest of the population and placed in CBU within the first month of their incarceration. As mentioned previously, rule violating behaviors were further disaggregated into more specific behaviors including aggression and oppositional behaviors. Specifically, the behavioral categories of physical, threatening, and destructive behaviors comprised aggression; and disruptive, disrespectful, and noncompliant behaviors comprised oppositional behaviors.

Table 1.2 *Categories for rule violating behaviors.*

<b>All Rule Violations</b>
Sex play/sexual coercion
Indecent exposure (hands in pants, exposing buttocks)
Sexual misbehavior
Saying something sexual in nature to staff/peers
Sexual gestures directed at staff/peers
Harm to self (e.g., banging head, scratching/hitting/biting self)
Suicide attempts
Suicide gestures
Verbalizing intentions to hurt oneself
Attempted escape
Running through/towards gates
Climbing over fence
Leaving confines of facility
Controlled behavior unit (CBU)
Behavior management unit (BMU)
Intensive Security Unit (ISU)
No leadership skills
Poor interaction with others/not helping others
Cheating on a test
Bad decision making
<b><u>Oppositional Behaviors</u></b>

Table 1.2 (continued).

**Disruptive Behavior**

Excessive Horseplay (play fighting)  
Excessive noise/yelling  
Excessive talking in classroom/dining hall/cottage  
Disruptive behavior/agitation of others (peers)  
Trying to get other youth to misbehave/act out  
No self-control  
Negative attitude  
Negative behavior  
Gets angry when given instructions/no anger control

**Disrespectful Behavior**

Calling staff names (not using profanity)  
Sitting in staff's chair  
Getting in staff's personal space  
Taking something from staff  
Touching staff in nonaggressive manner  
Yelling out to visitors/calling out to staff  
Tearing up/throwing out/not signing write-up  
Lying to staff  
Threatening to make false abuse report  
Agitation of staff/teachers  
Profanity w/o qualifier  
Gross profanity directed to staff/peers  
Attempting to verbally get staff/peers into altercation  
Arguing/yelling at staff/peers

**Noncompliance**

Noncompliance/does what he wants  
Not following staff directives  
Not following program rules  
Stealing/trading food  
Contraband (e.g., food in room, pencils)  
Incomplete activity/Off-task behavior  
Refusing school, assignment, group, details  
Off bounds/leaving classroom/fleeing to another cottage/on cottage roof  
Improper dress code  
No point sheet  
Refuse search  
Throwing sticks/pine cones (not @ anyone)

**Aggressive Behaviors**

**Destructive Behavior**

Attempted arson  
Destroying state property  
Throwing objects (trash cans, desks, chairs)  
Kicking/slammng doors  
Damage to property  
Ripping up text books/school work  
Destruction of state property – write-up

Table 1.2 (continued).

**Physical Aggression**

Fighting other youth  
Harm to others  
Hitting/kicking/biting staff or peers  
Trying to provoke others into physical altercation  
Throwing objects intentionally at others  
Inciting riot

**Threatening Behavior**

Threatening staff/peers  
Getting in staff's face/yelling in staff's face  
Pointing finger in staff's face  
Possession of weapon  
Gang evidence (gang contraband/gang signs)

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*Demographic Information and Covariates.* Demographic variables of interest such as age, ethnicity, and verbal IQ and covariates (e.g., age of first arrest, total number of past offenses, and gang affiliation) were extracted from the JO's clinical files.

**Procedures**

Within the first week of JOs' arrival to the facility, they were assigned to a therapist, completed an intake assessment, and a treatment plan was developed. Two to four weeks passed before baseline treatment monitoring measures (including the SPPA) were administered by mental health staff in order to allow for JOs' adjustment to the facility. JOs were read the directions of each treatment measure and were given an opportunity to ask questions to limit misunderstandings. Each measure was scanned following its completion to ensure all items were answered. Therapists were asked to complete the TRS within the same week treatment monitoring measures were completed. Trained research assistants coded demographic and assessment information, as well as past criminal charges from the JOs' de-identified clinical files. The research team requested de-identified behavioral write-ups and CBU placement data from facility staff at the time of the JOs' discharge from the facility.

## CHAPTER III - RESULTS

### Preliminary Analyses

Missing data for the TRS, SPPA, and rule violating behavior was examined for the youth's first month in the facility. The percentage of missing data for the TRS and SPPA was less than 1% and therefore multiple imputation was not necessary. The percentage of missing data for rule violating behavior slightly varied from week to week, with 10% of data missing for the first week, 12% for the second week, 12% for the third week, and 11% for the fourth week. Significant results for Little's MCAR test suggested that these data were not missing completely at random. Given these findings, it was determined that multiple imputation would be used for the behavioral data, as it is the recommended procedure for data that is missing at random. Graham, Olchowski, and Gilreath (2007) provide guidelines for the number of imputations that are appropriate given the percentage of missing data. Based on the recommendations of Graham et al. (2007), behavioral data (i.e., rule violations) was imputed a total of twenty times due to the percentage of missing data (ranging from 10%-12%) using a predictive mean matching model, as it is able to preserve the non-normal distribution of the data (Kleinke, 2017).

Before conducting the main analyses, descriptive statistics were examined for all study variables in order to determine if their means, standard deviations, and ranges approximated expected values from previous research. Further, scatterplots were used to identify outliers for predictor and outcome variables. Upon examination of scatterplots, it was determined that there were outliers for perceptual bias, inaccurate self-perceptions, and total number of past offenses. Outliers for these variables were winsorized (i.e.,



replaced with the next highest value that was not an outlier) (Field, 2015). Study variables were then screened for skewness and kurtosis; the outcome variable (i.e., rule violating behaviors) was positively skewed as a result of it containing a high percentage of zeros. As this was thought to be an accurate representation of the data, the high percentage of zeros were handled at the analytic level (i.e., negative binomial regression). Descriptive statistics of study variables disaggregated by race can be found in table 1.3.

Table 1.3 *Descriptive Statistics of Study Variables Disaggregated by Race.*

All JOs						
	N	Mean (SD)	Minimum	Maximum	Skewness	Kurtosis
TRS Mean	120	2.591 (.835)	1	4	-.109	-.583
SPPA Mean	119	2.758 (.687)	1.6	4	.208	-.917
Perceptual Bias	119	.155 (.898)	-1.8	1.8	-.139	0.595
Inaccurate SP	119	.748 (.517)	0	1.8	.531	-.653
All Rule Violations	112	26.741 (31.628)	0	133.5	1.591	1.923
Aggressive behaviors	112	1.369 (2.612)	0	13.7	2.669	7.828
Oppositional behaviors	112	19.823 (23.498)	0	104.55	1.689	2.383
Caucasian JOs						
	N	Mean (SD)	Minimum	Maximum	Skewness	Kurtosis
TRS Mean	35	2.757 (.817)	1	4	-.263	-.362
SPPA Mean	34	2.835 (.731)	1.8	4	.19	-1.263
Perceptual Bias	34	.038 (.97)	-1.8	1.6	-.455	-.72
Inaccurate SP	34	.802 (.528)	0	1.8	.42	-.87
All Rule Violations	33	18.309 (28.967)	0	124.75	2.417	6.234

Table 1.3 (continued).

Aggressive behaviors	33	1.154 (2.577)	0	11.75	3.03	10.006
Oppositional behaviors	33	12.218 (20.516)	0	89	2.488	6.906
African American JOs						
	N	Mean (SD)	Minimum	Maximum	Skewness	Kurtosis
TRS Mean	83	2.524 (.844)	1	4	-.046	-.605
SPPA Mean	83	2.706 (.664)	1.6	4	.251	-.67
Perceptual Bias	83	.179 (.865)	-1.8	1.8	.085	-.652
Inaccurate SP	83	.717 (.51)	0	1.8	.605	-.455
All Rule Violations	78	30.395 (32.353)	0	129.5	1.369	1.115
Aggressive behaviors	78	1.439 (2.67)	0	12.45	2.457	6.327
Oppositional behaviors	78	22.678 (24.338)	0	104.45	1.480	1.576

#### Interrelations between Predictor Variables and Covariates

In order to identify variables that should be included as covariates in the subsequent analytic models and to determine whether predictor and outcomes variables are related in the expected direction as outlined in the literature, bivariate correlations were examined. The correlation between actual behavioral conduct (i.e., scores on TRS) and the outcome variables were in the expected directions. Specifically, the relationship between actual behavioral ratings and all rule violations ( $r = -.481$ ), aggressive behaviors ( $r = -.337$ ), and oppositional behaviors ( $r = -.478$ ) were significantly and negatively correlated. Further, correlations between perceived behavioral conduct (i.e., scores on SPPA) and the outcome variables were also significant: all rule violations ( $r = -.328$ ),

aggressive behaviors ( $r = -.266$ ), and oppositional behaviors ( $r = -.285$ ). There was also a significant and positive association between perceived behavioral ratings and actual behavioral ratings ( $r = .287$ ). None of the correlations between the predictor variables (i.e., perceptual bias and inaccurate self-perceptions) and outcome variables (i.e., all rule violations, aggressive behaviors, oppositional behaviors) were significant (see table 1.4. Out of the four covariates proposed (i.e., age of first arrest, total number of past offenses, gang affiliation, and total number of commitments), none were related to the outcome or predictor variables, so they were not included in the models as covariates testing the main hypotheses of this study.

Table 1.4 *Correlations among Study Variables.*

	Perceptual Bias	Inaccurate Self- Perceptions	All Rule Violations	Aggressive Behaviors	Oppositional Behaviors
Perceptual Bias <sup>1</sup>	--				
Inaccurate Self- Perceptions <sup>1</sup>	.177	--			
All Rule Violations <sup>1</sup>	.238*	-.031	--		
Aggressive Behaviors <sup>1</sup>	.167	-.075	.665**	--	
Oppositional Behavior <sup>1</sup>	.252**	.001	.981**	.581**	--
Age of 1 <sup>st</sup> arrest	-.001	.163	.027	-.099	.067
Total # of past offenses <sup>1</sup>	-.114	.093	-.082	-.011	-.099
Gang affiliation <sup>2</sup>	-.150	-.035	.130	.101	.120
Total # of commitments <sup>1</sup>	.063	-.062	.186	.143	.168
TRS <sup>1</sup>	-.692***	-.031	-.513**	-.364**	-.511**
SPPA <sup>1</sup>	.490**	.190*	-.295**	-.212*	-.274**

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\*  $p < .001$

<sup>1</sup>Bivariate Correlation

<sup>2</sup>Point Biserial Correlation

## Data Analytic Strategy

Because the outcome variables (i.e., all rule violating behaviors, aggressive behaviors, oppositional behaviors) were count data and contained a high percentage of zeros, traditional linear regression models could not be used. Rather, poisson regression or negative binomial regression are the suggested analytic strategy for these types of data (Beaujean & Morgan, 2016). Negative binomial regression was considered to be a better fit for analyzing our data as compared to poisson regression due to the outcome variables not following a poisson distribution. Specifically, poisson regression requires that the variance and mean are comparable, whereas negative binomial regression is used when the variance is larger than the mean (Beaujean & Morgan, 2016). Further, a one-sample Kolmogorov-Smirnov test indicated that the rule violating behavior data did not follow a poisson distribution,  $K-S Z = 5.381, n = 13, p < 0.001$ . Lastly, the dispersion coefficients' 95% confidence interval did not contain zero, and thus, it was determined that these data most closely matched the negative binomial probability distribution.

A series of negative binomial regressions were conducted to test the hypothesis that perceptual bias and inaccurate self-perceptions are predictive of rule violating behaviors. Rule violations were broken down into the following categories: all rule violations, aggressive behaviors (i.e., physical aggression, threatening behavior, and destructive behaviors), and oppositional behaviors (i.e., disruptive, disrespectful, noncompliant). For these models, perceptual bias or inaccurate self-perceptions was entered as the predictor; all rule violations, aggressive behavior, or oppositional behavior was entered as the outcome; and actual behavioral conduct (TRS score) was included as the covariate for perceptual bias only, as actual ratings have been found to have more of

an influence on the perceptual bias difference score than perceived ratings (Stephens et al., 2015).

Additionally, a series of negative binomial regressions were conducted to test the hypothesis that race moderated the relationship between discrepant self-perceptions (i.e., perceptual bias and inaccurate self-perceptions) and rule violating behaviors. In these regression models, perceptual bias and race were centered and multiplied together to form an interaction term. An interaction term for inaccurate self-perceptions and race was calculated in the same manner. The interaction term and the centered discrepant self-perceptions variable (i.e., perceptual bias or inaccurate self-perception) and race were entered as predictors; and all rule-violating behavior, aggressive behavior, or oppositional behavior was entered as the outcome variable. In order to aid in the interpretation of the relationships between the independent and dependent variables, the exponentiated regression coefficient,  $\text{Exp}(\beta)$ , was reported and represents a weighted variable that standardizes the effect between the predictor and outcome variable so that a 1-unit change in the predictor variable reflects a multiplicative effect for the outcome variable (Anestis, Gottfried, & Joiner, 2014).

### Main Study Analyses

Results revealed that perceptual bias was marginally significant in predicting all rule-violations,  $B(SE) = -.301(0.154)$ ,  $IRR = 0.741$ ,  $p = .050$ . Specifically, for every one-unit decrease in perceptual bias, rule violations occurred 0.741 times more often, so it appears that an *underestimation* as opposed to an overestimation in perceived behavioral competence is associated with more rule violating behaviors for juvenile offenders. In contrast, perceptual bias did not significantly predict aggressive behaviors (i.e., physical

aggression, threatening, and destructive behaviors;  $B(SE) = -.203(0.224)$ ,  $IRR = 0.819$ ,  $p = .365$ ); however, oppositional behaviors (i.e., disruptive, disrespectful, noncompliant) also trended toward significance ( $B(SE) = -.273(0.154)$ ,  $IRR = 0.761$ ,  $p = .077$ ).

Inaccurate self-perceptions was also not a significant predictor of these outcomes (all rule-violations:  $B(SE) = -.069(0.187)$ ,  $IRR = 0.934$ ,  $p = .712$ ; aggressive behaviors:  $B(SE) = -.292(0.286)$ ,  $IRR = 0.754$ ,  $p = .304$ ; oppositional behaviors,  $B(SE) = -.004(0.190)$ ,  $IRR = 0.997$ ,  $p = .982$ ). Results of direct effect models can be found in table 1.5. It should be noted these direct effects models were also run on the original data (without imputed data) and were found to be slightly different with perceptual bias as the predictor variable. Specifically, perceptual bias was a significant predictor of all rule violations ( $B(SE) = -.556(0.156)$ ,  $IRR = 0.574$ ,  $p < .001$ , aggressive behaviors ( $B(SE) = -.711(0.266)$ ,  $IRR = 0.491$ ,  $p = .008$ ), and oppositional behaviors ( $B(SE) = -.471(0.156)$ ,  $IRR = 0.625$ ,  $p = .003$ ).

Table 1.5 *Direct Effect Models.*

<b>All Rule Violations</b>					
Parameters	B (SE)	P	Wald	Exp( $\beta$ )	95% CI for Exp( $\beta$ )
<u>Perceptual Bias</u>					
Constant	5.878 (.500)	<.001	142.654	358.244	136.522-940.107
Perceptual Bias	-0.301 (.154)	.050	4.105	0.741	0.553-0.993
TRS	-1.071 (.185)	<.001	35.112	0.343	0.241-0.489
<u>Inaccurate SP</u>					
Constant	3.335 (.177)	<.001	378.739	28.089	20.075–39.301
Inaccurate SP	-0.069 (.187)	.712	.172	0.934	0.651-1.339
<b>Aggressive Behaviors</b>					
Parameters	B (SE)	P	Wald	Exp( $\beta$ )	95% CI for Exp( $\beta$ )
<u>Perceptual Bias</u>					

Table 1.5 (continued).

Constant	2.807 (.628)	<.001	16.985	16.985	5.455-52.973
Perceptual Bias	-0.203 (.224)	.365	1.144	0.819	0.551-1.220
TRS	-1.063 (.250)	<.001	22.777	0.348	0.224-0.538
<b><u>Inaccurate SP</u></b>					
Constant	.514 (.261)	.050	5.792	1.686	1.093–2.601
Inaccurate SP	-.292 (.286)	.308	1.635	.754	.465 - 1.223
<b>Oppositional Behaviors</b>					
Parameters	B (SE)	P	Wald	Exp( $\beta$ )	95% CI for Exp( $\beta$ )
<b><u>Perceptual Bias</u></b>					
Constant	5.500 (.502)	<.001	124.849	245.8205	93.643–645.347
Perceptual Bias	-0.180 (.105)	.086	3.172	0.835	0.684–1.020
TRS	-0.273 (.154)	.077	3.386	0.568	0.568–1.021
<b><u>Inaccurate SP</u></b>					
Constant	2.986 (.181)	<.001	299.174	19.829	14.136–27.815
Inaccurate SP	-0.004 (.190)	.982	.045	.997	.693–1.432

For the moderation models, the interaction term between race and perceptual bias was not found to be significant for all rule-violating behaviors,  $B(SE) = .096(0.287)$ ,  $IRR = 1.102$ ,  $p = 0.737$ , aggressive behaviors,  $B(SE) = .411(0.391)$ ,  $IRR = 1.523$ ,  $p = 0.294$ , or oppositional behaviors,  $B(SE) = 0.096(0.286)$ ,  $IRR = 1.103$ ,  $p = 0.737$ . However, the interaction term between inaccurate self-perceptions and race was significant for all rule-violations,  $B(SE) = 1.456(0.430)$ ,  $IRR = 4.300$ ,  $p = .001$ , aggressive behaviors  $B(SE) = 1.363(0.650)$ ,  $IRR = 3.991$ ,  $p = .036$ , and oppositional behaviors  $B(SE) = 1.449(0.437)$ ,  $IRR = 4.272$ ,  $p = .001$ . The simple effects of this interaction indicated that a decrease in inaccurate self-perceptions (or greater accuracy) predicted more rule violations,

aggressive behaviors, and oppositional behaviors for Caucasian juvenile offenders (all rule violations:  $B(SE) = -1.250(0.363)$ ,  $IRR = 0.287$ ,  $p = .001$ ; aggressive behaviors:  $B(SE) = -1.368(0.554)$ ,  $IRR = 0.245$ ,  $p = .014$ ; oppositional behaviors:  $B(SE) = -1.183(0.371)$ ,  $IRR = 0.307$ ,  $p = .001$ , but not for African American juvenile offenders (all rule violations:  $B(SE) = .206(0.231)$ ,  $IRR = 1.230$ ,  $p = .371$ ; aggressive behaviors:  $B(SE) = -.005(0.344)$ ,  $IRR = 1.006$ ,  $p = .988$ ; oppositional behaviors:  $B(SE) = .266(0.232)$ ,  $IRR = 1.305$ ,  $p = .252$ ). See figures 1-3 for simple slope graphs. Specifically, for a Caucasian JO with greater accuracy (e.g., a score of 2), this youth will have .287 more rule violations, .245 more aggressive, and .307 more oppositional behaviors than a JO who is less accurate (e.g., a score of 3) with respect to their perceived behavioral conduct. Results of the moderation models can be found in table 1.6.

It should be noted these moderation models were also run on the original data (without imputed data). For these models, the interaction term between race and perceptual bias was not found to be significant for all rule-violating behaviors ( $B(SE) = .118(0.252)$ ,  $IRR = 1.125$ ,  $p = 0.641$ ), aggressive behaviors ( $B(SE) = .296(0.417)$ ,  $IRR = 1.345$ ,  $p = 0.478$ ), or oppositional behaviors ( $B(SE) = 0.121(0.253)$ ,  $IRR = 1.129$ ,  $p = 0.632$ ). Moderations models that included the interaction term between race and inaccurate self-perceptions was found to be significant for all rule violating behaviors ( $B(SE) = .951(0.428)$ ,  $IRR = 2.589$ ,  $p = 0.026$ ) and oppositional behaviors ( $B(SE) = .995(0.435)$ ,  $IRR = 2.705$ ,  $p = 0.022$ ), but not for aggressive behaviors ( $B(SE) = 0.421(0.655)$ ,  $IRR = 1.523$ ,  $p = 0.520$ ). The simple effects of this interaction indicated that a decrease in inaccurate self-perceptions (or greater accuracy) predicted more rule violations and oppositional behaviors for Caucasian juvenile offenders (all rule



violations:  $B(SE) = -.816(0.362)$ ,  $IRR = 0.442$ ,  $p = .024$ ; oppositional behaviors:  $B(SE) = -.749(0.37)$ ,  $IRR = 0.473$ ,  $p = .043$ , but not for African American juvenile offenders (all rule violations:  $B(SE) = .135(0.229)$ ,  $IRR = 1.145$ ,  $p = .555$ ; oppositional behaviors:  $B(SE) = .246(0.229)$ ,  $IRR = 1.279$ ,  $p = .283$ ).

Table 1.6 *Moderation Models.*

All Rule Violations					
Parameters	B (SE)	P	Wald	Exp( $\beta$ )	95% CI for Exp( $\beta$ )
<u>Perceptual Bias</u>					
Constant	5.786 (.488)	<.001	145.09	326.886	127.495-838.130
TRS	-1.034 (.190)	<.001	30.734	.356	.247-.513
Perceptual Bias	-.460 (.527)	.383	.830	.634	.230-1.747
Race	-.192 (.228)	.399	.806	.826	.535-1.276
Perceptual Bias*Race	.096 (.287)	.737	.149	1.103	.635–1.916
<u>Inaccurate Self-Perceptions</u>					
Constant	3.407 (.119)	<.001	876.249	30.192	24.095-37.833
Inaccurate SP	-2.706 (.762)	<.001	13.066	.067	.016-.293
Race	-.617 (.217)	.004	8.299	.540	.354-.822
Inaccurate SP*Race	1.456 (.430)	.001	11.851	4.300	1.875–9.863
Aggressive Behaviors					
<u>Perceptual Bias</u>					
Constant	2.761 (.614)	.259	23.665	16.184	5.297-49.509
TRS	-1.105 (.259)	.259	22.183	.333	.210-.528
Perceptual Bias	-.926 (.685)	.177	2.159	.406	.115-1.432
Race	.285 (.365)	.436	1.192	1.351	.734-2.488
Perceptual Bias*Race	.411 (.391)	.294	1.433	1.523	.748-3.100
<u>Inaccurate Self-Perceptions</u>					
Constant	.356 (.185)	.056	6.456	1.435	1.075-1.917

Table 1.6 (continued).

Inaccurate SP	-2.731 (1.157)	.018	6.216	.069	.008-.600
Race	-0.395 (.331)	0.232	1.878	0.679	.376-1.227
Inaccurate SP*Race	1.363 (.650)	.036	5.096	3.991	1.205–13.224
<b>Oppositional Behaviors</b>					
<u>Perceptual Bias</u>					
Constant	5.412 (0.489)	<.001	127.272	225.042	87.883-576.290
TRS	-1.000 (.191)	<.001	28.766	.368	.255-.531
Perceptual Bias	-.431 (.526)	.412	.772	.654	.240-1.781
Race	-.227 (.233)	.329	1.108	.798	.515-1.238
Perceptual Bias*Race	.096 (.286)	.737	.170	1.103	.639–1.904
<u>Inaccurate Self-Perceptions</u>					
Constant	3.110 (.121)	<.001	721.958	22.436	17.882-28.149
Inaccurate SP	-2.632 (.777)	.001	12.063	.073	.017-.323
Race	-.632 (.220)	.004	8.532	.532	.348-.814
Inaccurate SP*Race	1.449 (.437)	.001	11.499	4.272	1.847–9.884

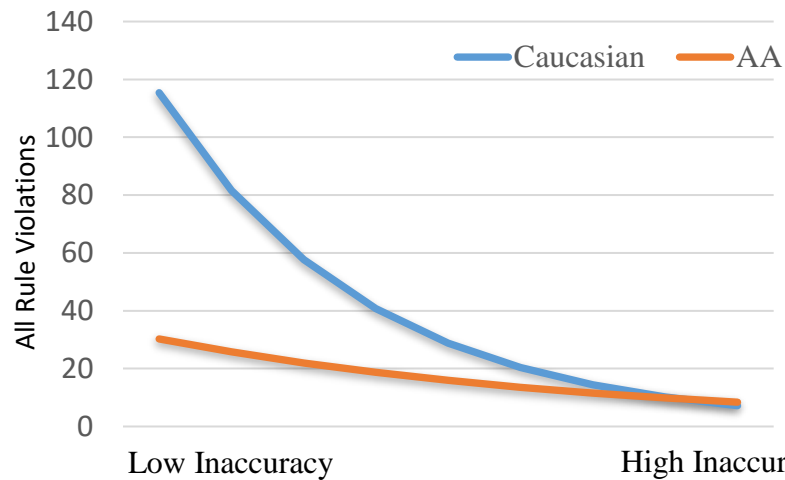


Figure 1. The relationship between low and high inaccuracy and all rule violations for Caucasian and African American JOs.

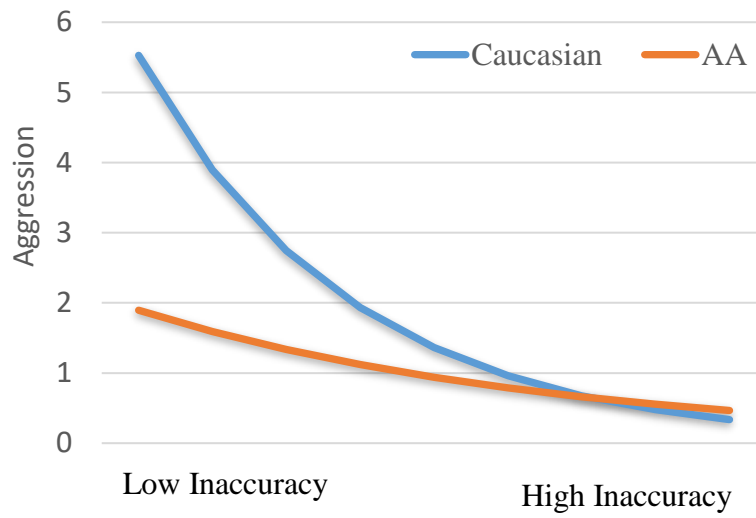


Figure 2. The relationship between low and high inaccuracy and aggression for Caucasian and African American JOs.

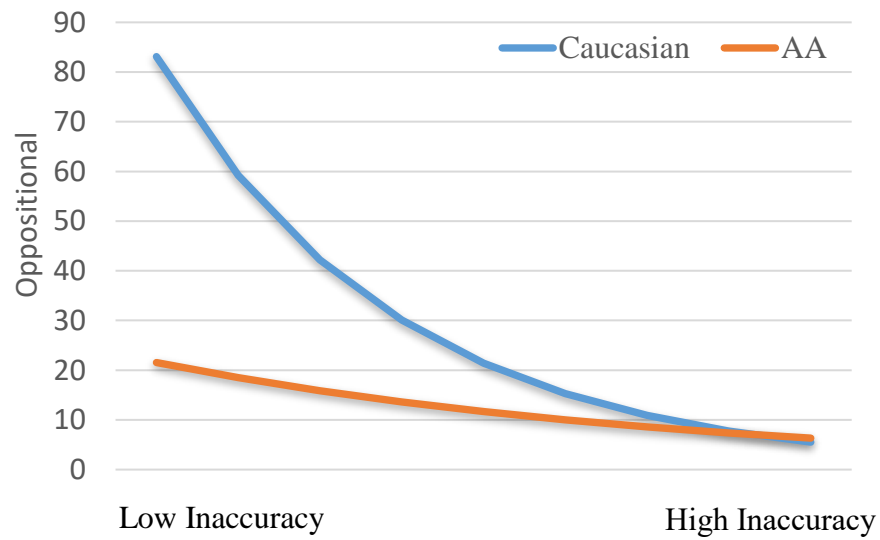


Figure 3. The relationship between low and high inaccuracy and oppositional behaviors for Caucasian and African American JOs.

## CHAPTER IV – DISCUSSION

This study focused on examining whether two separate facets of discrepant self-perceptions (i.e., perceptual bias and inaccurate self-perceptions) in the behavioral domain were predictive of rule violations for a JO population following their incarceration. Additionally, of interest was whether race moderated the relationship between discrepant self-perceptions and rule violating behaviors. The present study was conducted to better understand risk factors that predispose youth to rule violating behaviors while incarcerated; this is useful and important information for researchers and clinicians attempting to develop appropriate interventions for JOs during and after their incarceration. Results of the present study revealed that perceptual bias marginally predicted all rule violations such that youth who underestimated their self-perceptions had more rule violations; further, oppositional behaviors appeared to contribute to this relationship to a greater extent than aggressive behaviors as it also trended towards significance. Additionally, results indicated that race moderated the relationship between inaccurate self-perceptions and rule violating behaviors. Specifically, greater accuracy was associated with an increase in all rule violations, aggressive behaviors, and oppositional behaviors for Caucasian JOs only.

### Discrepant Self-Perceptions as Predictors of Rule Violating Behaviors

#### *Perceptual Bias and Rule Violations*

The results of this study were not supportive of the hypothesis for perceptual bias, as negatively biased, and not positively biased, self-perceptions of behavior trended toward significance in the prediction of all rule violations. This hypothesis was based on the results of Mikami et al. (2010), which found that positively biased self-perceptions in

the behavior domain predicted increases in oppositional behavior over time in a sample of at-risk children who attended a summer treatment program for youth with ADHD and oppositional behaviors. However, the link between negatively biased perceptions and maladaptive behaviors is not unprecedented (e.g., Brendgen, Vitaro, Turgeon, Poulin, & Wanner, 2004; Perez, Kupersmidt, & Griesler, 2005; White & Kistner, 2011). In fact, White and Kistner (2011) found that children who are socially rejected and underestimate *or* overestimate their social acceptance are at increased risk of aggression. White and Kistner (2011) posit that the pathway from underestimation to aggression may be due to a variety of risk factors, or perhaps, a combination of risk factors including a greater susceptibility to rejection sensitivity, interpreting other's intentions as hostile, or behaving in a way that aligns with how they perceive others to view them (i.e., self-verification theory).

A plausible explanation as to why JOs who underestimate their behavioral competence are more likely to have rule violations may be that that youth who receive the most rule violations may also receive the most feedback on their negative behaviors. If this information is internalized, it may result in the maintenance of their negative self-perceptions, which drives these youths to behave in accordance with their perceptions in order to avoid cognitive dissonance (i.e., discomfort arising when one's thoughts, character, behaviors are not in congruence with reality; Gawronski & Brannon, 2016). Such an explanation coincides with the self-verification theory. Specifically, the self-verification theory posits that individuals prefer others to have the same views of them as they have of themselves, even if their own self-views are negative (Swann, 2011). In this JO population, perhaps these youths possess negative self-views of their behavioral

functioning, and in an attempt to have others' views align with their own views, they behave in ways that violate the rules of the facility.

Another explanation may be that because self-perceptions within the behavioral domain are likely to contribute to adolescents' overall self-views, as posited by Harter (1982), then perhaps these youths also underestimate their competence across a variety of other domains (e.g., social, academic functioning), which may lead to low self-esteem. According to the low self-esteem hypothesis, aggressive behaviors are an external representation of the difficulties a person is experiencing within themselves (e.g., self-loathing, insecurities). Indeed, past studies have found that when adolescents with high- and low self-esteem are compared, those youths with low self-esteem are at a greater risk of several maladaptive outcomes later in life, including criminality, delinquent behavior, and aggressive behavior (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Smith et al., 2015; Trzesniewski, Donnellan, Moffitt, Robins, & Caspi, 2006).

### Moderating Effects of Race

#### *Race, Inaccurate Self-Perceptions, and Rule Violating Behaviors*

In addition, this study sought to examine whether race moderated the relationship between discrepant self-perceptions and rule violating behaviors; specifically, it was hypothesized that the relationship between discrepant self-perceptions and rule violating behaviors would be stronger for African American JOs than Caucasian JOs. Such a prediction was made given that past research has found that African American children are more likely to have positively biased self-perceptions as compared to Caucasian children, are often rated as having more behavioral problems, and are overrepresented in regard to disciplinary referrals (Dunkel et al., 2009; Skiba et al., 2002; Skiba et al., 2004;

Stephens et al., 2015; Townsend, 2000). Results of this study revealed that race was a moderator only for the relationship between inaccurate self-perceptions and rule violating behaviors. Specifically, more accurate self-perceptions, and not inaccurate self-perceptions, was associated with an increase in all rule violations, aggressive behaviors, and oppositional behaviors among Caucasian JOs.

This finding suggests Caucasian JOs are aware that their behavior is problematic, and they are either unmotivated or unable to change their inappropriate behaviors.

Indeed, research has suggested that Caucasian youths are incarcerated for more severe forms of criminal offenses than African American youths (Steffensmeier, Painter-Davis, Ulmer, 2017), which may also coincide with higher rates of psychopathology (Karnik et al., 2010; Teplin, 2006). In a study by Teplin and colleagues (2006), Caucasian JOs were found to have the highest prevalence rates of ADHD, oppositional disorders, and substance abuse disorders when compared to Hispanic and African American JOs, suggesting they may have a greater proclivity for impulsive behaviors. Further, preliminary research suggests that callous-unemotional traits are more common amongst Caucasian children when compared to African-American children (Kimonis, Frick, Fazekas, et al., 2006). Interestingly, past research has found that callous-unemotional traits are a risk factor for criminal offending in youth (Kimonis et al., 2008; Stickle, Kirkpatrick, and Brush, 2009) and are related to violent behaviors that are premeditated and purposeful in nature (Frick Cornell, Barry, Bodin, & Dane, 2003; Kruh, Frick, & Clements, 2005; Pardini, Lochman, & Fick, 2003). As such, youths may be unmotivated to change their behaviors, as it affords them some desired outcome (e.g., controlling others, establishing dominance).

## Clinical Implications

The findings of the current study have several clinical implications. Considering our results suggest that JOs who underestimate their behavioral competence are more likely to have rule violations when first adjusting to the facility, it would be worthwhile to help youth view their behavior in more realistic ways. Perhaps using techniques (e.g., cognitive-behavioral therapy) that target maladaptive thinking patterns (i.e., cognitive distortions) related to negatively biased perceptions of their behavior would be beneficial (Smith et al., 2015). Indeed, past research has suggested that cognitive distortions centered around self-views are important treatment targets for juvenile delinquents (Lardén, Melin, Holst, & Långström, 2006). Further, it may prove beneficial for detention staff and therapists to balance the feedback they give to JOs so it is not solely focused on rule violating behaviors, but appropriate behaviors are acknowledged and rewarded as well.

Our results also revealed that Caucasian JOs are perceiving their behaviors accurately but are still engaging in a significant number of rule violations. As suggested previously, Caucasian JOs are at greater risk for psychopathology than African American JOs so they may be unmotivated or unable to change their inappropriate behaviors. Thus, it may be beneficial to try to increase the motivation of youths to engage in appropriate behaviors while in the facility. For example, token economies that would require the adolescents to earn points for appropriate behaviors and lose points for inappropriate behaviors may help incentivize youths to follow the rules of the facility. In general, the research supports the use of universal behavior management programs that are implemented in group settings (e.g., classrooms) to help prevent and manage behavioral



difficulties (Maggin, Chafouleas, Goddard, & Johnson, 2011; Wilson and Lipsey, 2007). Indeed, research suggests that material reinforcements (i.e., as seen with token economies), may be an appropriate starting point when attempting to increase internal motivation for incarcerated youths (Mathys, 2017). Given that this facility already had a token economy in place, it is important to consider factors that may optimize its effectiveness such as ensuring rewards are motivating to JOs and are delivered in a consistent and timely manner (Barkley, 2013).

When considering treatment interventions for youths who have difficulties with impulsivity (e.g., ADHD, conduct disorder), there are a few techniques that may be useful. In order to build skills that assist youths in thinking of the consequences before acting, it may be helpful to consider techniques often used within the cognitive-behavioral therapy framework (e.g., Stop and Think, problem-solving, perspective-taking) (Sukhodolsky, Kassinove, and Gorman, 2004). Additionally, skills that are taught as part of the adolescent version of dialectal behavior therapy (e.g., interpersonal skills) may be useful in encouraging youths to consider what they hope to achieve when interacting with others. These skills may be reinforced through modeling, role-playing, and feedback (Sukhodolsky et al., 2004).

### Limitations

Past research examining the relationship between discrepant self-perceptions and maladaptive behaviors have focused on less severe populations (e.g., ADHD, typically developing) or have examined self-perceptions in other domains (e.g., peer acceptance, academic). The current study extended our understanding of the interplay between these variables of interest in the following ways: (1) focused on a sample comprised

exclusively of juvenile offenders, an often understudied population (Smith et al., 2015); (2) examined two separate facets of discrepant self-perceptions (perceptual bias and inaccurate self-perceptions) in the *behavior* domain; (3) explored whether race moderated the relationship between discrepant self-perceptions and rule violating behaviors; and (4) used behavioral write-ups to capture rule violations versus relying on self-report measures.

Despite this study's strengths and the novelty of the research questions asked, there are a few limitations that deserve attention. First, ratings of actual behavioral conduct were provided by therapists who had access to the behavioral write-ups from staff; however, their ratings may not have reflected the youths' behavior in other settings (e.g., the classroom). Future studies may consider supplementing TRS data with peer ratings of behavioral functioning (e.g., peer nominations for least/most well-behaved) or with ratings from multiple staff members who work with youth throughout the day. Indeed, many studies that have examined discrepant self-perceptions have used peer ratings of behavior in lieu of or in addition to teacher ratings (Hoza et al., 2002, 2004; Kistner et al., 2003; Smith et al., 2015). Including additional raters of behavioral conduct would address concerns regarding whether the ratings provided by therapists ratings adequately capture this construct. Second, youths' perceptions of their own behavior may not solely reflect their actions following their arrival to the facility but may be influenced by their actions prior to their commitment. Future studies should consider altering the instructions of the SPPA so that it is clear that their ratings should be based on their behavioral functioning while at the facility. Finally, rule violations were only given for inappropriate behaviors directly observed by the staff and it is possible that some

behaviors were missed, especially in situations where youths could not be closely monitored (e.g., bathroom). In order to address this limitation, it may be useful to have the youths provide ratings on how often they engage in rule violating behaviors.

#### Future Directions

Because the results of the current study were not in the expected direction, future studies should attempt to replicate this study in another sample of JOs and expand this research to female juvenile offenders. The juvenile offender population as a whole is underrepresented in the literature, however, this is especially true for female juvenile offenders (Dixon, Howie, & Starling, 2004). Dixon et al. (2004) highlight the need of more research focusing on female juvenile offenders given that there is emerging evidence that female juvenile offenders possess different characteristics (e.g., rates of mental disorders; developmental trajectories of problem behaviors) as compared to male juvenile offenders (Broidy et al., 2003; Timmons-Mitchell et al., 1997). Overall, research examining discrepant self-perceptions in the behavioral domain should be expanded upon for both typically developing adolescents and adolescents with other mental health concerns (e.g., callous unemotional traits, ADHD, Conduct Disorder).

Furthermore, it would be worthwhile for future studies to examine potential mechanisms by which negatively biased self-perceptions lead to increased rule violations. In keeping with the self-verification theory, the relationship between negatively biased perceptions of behavioral functioning and increased rule violations may be a function of a desire for cognitive consonance. In other words, youths who think poorly of their behavioral functioning may act in ways that support or verify this perception. The mechanisms explaining the link between accurate self-perceptions and increased rule

violations in Caucasian JOs may include higher levels of impulsivity (e.g., ADHD symptoms), callous-unemotional traits, or the belief that rule violating behaviors are necessary to achieve a desired outcome.

Finally, it is important to consider the results of the White and Kistner (2011) study in the context of our results. Specifically, White and Kistner (2011) found a curvilinear relationship between perceptual bias in the social domain and aggression. Thus, it would be worthwhile for future studies to examine whether under- and over-estimations of behavioral functioning are predictive of rule violating behaviors.

### Conclusion

This study examined whether discrepant self-perceptions (perceptual bias and inaccurate self-perceptions) were predictive of juvenile offenders' initial adjustment (as measured by rule-violations) in a maximum-security residential facility. In addition, the present study also examined whether race moderated the relationship between discrepant self-perceptions and rule violations. Results indicated that negatively biased perceptions of behavioral conduct were marginally predictive of increased rule violations and oppositional behaviors. Further, results suggested that more accurate perceptions in the behavioral domain were predictive of increased rule violations for Caucasian JOs only. At this time, more research is needed in order to determine the mechanisms by which negatively biased perceptions and accurate self-perceptions among Caucasian JOs result in more rule violations. As this research is extended, future studies should focus on developing interventions that target these risk factors of maladjustment in juvenile offenders.

APPENDIX A– IRB Exemption Letter



118 COLLEGE DRIVE #5116 • HATTIESBURG, MS | 601.266.6756 | WWW.USM.EDU/ORI

June 20, 2018

To Whom It May Concern,

I have reviewed the IRB application of Kimberly Barajas (“Discrepant Self-Perceptions as Predictors of Rule Violating Behavior Among Juvenile Offenders”), as well as documentation from partnering external institutions, and have determined that IRB review and approval of this project is not required. USM will be relying on the prior approval of the research by Florida State University, and the human participant data involved will be previously collected and de-identified.

If you have question about this, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Sam Bruton", with a stylized flourish at the end.

Sam Bruton, Director  
Samuel.Bruton@usm.edu

## APPENDIX B - Self-Perception Profile for Adolescents (SPPA)

**Directions:** The following sentences are about how youths feel about themselves, behave, and perform in different areas. First, choose the statement that best describes you by circling it, and then decide if this sentence is “sort of true for me” or “really true for me” by putting an ‘X’ in that box. When choosing a sentence, think about how you’ve been feeling and what you’ve been doing since getting here.

1.	Really true for me	Sort of true for me		<b>BUT</b>		Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths feel that they are just as smart as others their age		Other youths aren’t so sure and wonder if they are as smart.	<input type="checkbox"/>	<input type="checkbox"/>
2.	Really true for me	Sort of true for me		<b>BUT</b>		Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths find it hard to make friends		For other youths, it’s pretty easy.	<input type="checkbox"/>	<input type="checkbox"/>
7.	Really true for me	Sort of true for me		<b>BUT</b>		Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths usually do the right thing		Other youths often don’t do what they know is right.	<input type="checkbox"/>	<input type="checkbox"/>
9.	Really true for me	Sort of true for me		<b>BUT</b>		Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths are often disappointed with themselves		Other youths are pretty pleased with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
10	Really true for me	Sort of true for me				Sort of true for me	Really true for me

	<input type="checkbox"/>	<input type="checkbox"/>	Some youths are pretty slow in finishing their school work	<b>BUT</b>	Other youths can do their school work more quickly.	<input type="checkbox"/>	<input type="checkbox"/>
11	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths have a lot of friends	<b>BUT</b>	Other youths don't have very many friends.	<input type="checkbox"/>	<input type="checkbox"/>
16	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths often get in trouble for the things they do	<b>BUT</b>	Other youths usually don't do things that get them in trouble.	<input type="checkbox"/>	<input type="checkbox"/>
18	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths don't like the way they are leading their life	<b>BUT</b>	Other youths do like the way they are leading their life.	<input type="checkbox"/>	<input type="checkbox"/>
19	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths do very well at their class work	<b>BUT</b>	Other youths don't do very well at their class work.	<input type="checkbox"/>	<input type="checkbox"/>
20	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths are very hard to like	<b>BUT</b>	Other youths are really easy to like.	<input type="checkbox"/>	<input type="checkbox"/>
25	Really true for me	Sort of true for me				Sort of true for me	Really true for me

	<input type="checkbox"/>	<input type="checkbox"/>	Some youths feel really good about the way they act	<b>BUT</b>	Other youths don't feel that good about the way they often act.	<input type="checkbox"/>	<input type="checkbox"/>
27	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths are happy with themselves most of the time	<b>BUT</b>	Other youths are often not happy with themselves.	<input type="checkbox"/>	<input type="checkbox"/>
28	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths have trouble figuring out the answers in school	<b>BUT</b>	Other youths almost always can figure out the answers.	<input type="checkbox"/>	<input type="checkbox"/>
29	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths are popular with others their age	<b>BUT</b>	Other youths are not very popular.	<input type="checkbox"/>	<input type="checkbox"/>
34	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths do things they know they shouldn't do	<b>BUT</b>	Other youths hardly ever do things they know they shouldn't do.	<input type="checkbox"/>	<input type="checkbox"/>
36	Really true for me	Sort of true for me				Sort of true for me	Really true for me



	<input type="checkbox"/>	<input type="checkbox"/>	Some youths like the kind of person they are	<b>BUT</b>	Other youths often wish they were someone else.	<input type="checkbox"/>	<input type="checkbox"/>
37	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths feel that they are pretty intelligent	<b>BUT</b>	Other youths question whether they are intelligent.	<input type="checkbox"/>	<input type="checkbox"/>
38	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths feel they are socially accepted	<b>BUT</b>	Other youths wish that more people their age accepted them.	<input type="checkbox"/>	<input type="checkbox"/>
43	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths usually act the way they know they are supposed to	<b>BUT</b>	Other youths often don't act the way they are supposed to.	<input type="checkbox"/>	<input type="checkbox"/>
45	Really true for me	Sort of true for me				Sort of true for me	Really true for me
	<input type="checkbox"/>	<input type="checkbox"/>	Some youths are very happy being the way they are	<b>BUT</b>	Other youths wish they were different.	<input type="checkbox"/>	<input type="checkbox"/>

## APPENDIX C – Teacher’s Rating Scale

**Directions:** For each youth, please indicate what you feel he is actually like, in your opinion. First, decide whether you feel the individual is more like youths described in the statement on the left side or on the right side. Then, for that side only, indicate whether that statement is **really true** or just **sort of true**, for that individual by placing an ‘X’ in that box.

1.	Really True	Sort of True		<b>OR</b>		Sort of True	Really True
	<input type="checkbox"/>	<input type="checkbox"/>	This individual is intelligent		This individual is not that intelligent	<input type="checkbox"/>	<input type="checkbox"/>
2.	Really True	Sort of True		<b>OR</b>		Sort of True	Really True
	<input type="checkbox"/>	<input type="checkbox"/>	This individual does not have a lot of friends		This individual does have a lot of friends	<input type="checkbox"/>	<input type="checkbox"/>
7.	Really True	Sort of True		<b>OR</b>		Sort of True	Really True
	<input type="checkbox"/>	<input type="checkbox"/>	This individual often doesn’t do the right thing		This individual usually does the right thing	<input type="checkbox"/>	<input type="checkbox"/>
9.	Really True	Sort of True		<b>OR</b>		Sort of True	Really True
	<input type="checkbox"/>	<input type="checkbox"/>	This individual does well at schoolwork		This individual doesn’t do that well at schoolwork	<input type="checkbox"/>	<input type="checkbox"/>
10	Really True	Sort of True		<b>OR</b>		Sort of True	Really True
	<input type="checkbox"/>	<input type="checkbox"/>	This individual is popular		This individual is not that popular	<input type="checkbox"/>	<input type="checkbox"/>
15	Really True	Sort of True		<b>OR</b>		Sort of True	Really True
	<input type="checkbox"/>	<input type="checkbox"/>	This individual usually acts the way he is supposed to		This individual often doesn’t act the way he is supposed to	<input type="checkbox"/>	<input type="checkbox"/>

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